CLAIMS

1. A method for the production of a VHH single heavy chain antibody in a mammal comprising the step of expressing a heterologous VHH heavy chain locus in that mammal.

2. A method according to claim 1 wherein the VHH heavy chain locus comprises:

(a) at least one VHH region each comprising one VHH exon, at least one D region each comprising one D exon and at least one J region each comprising one J exon, wherein the VHH region, the D region and the J region are capable of recombining to form VDJ coding sequence,

(b) a constant region heavy chain region comprising at least one Cγ constant heavy chain gene, and which when expressed does not express a functional CH1 domain nor a functional CH4 domain,

(c) a recombination sequence (rss) capable of recombining a J region of step (a) directly with a Cγ constant heavy chain gene of step (b),

and which locus when expressed is capable of forming a complete single heavy chain IgG molecule (scIgG).

3. A method for the production of a camelised VH single heavy chain antibody in a mammal comprising the step of expressing a camelised VH heavy chain locus in that mammal.

4. A method according to claim 3 wherein the camelised VH heavy chain locus comprises:

(a) at least one VH region each comprising one VH exon which is mutated such that the nucleic acid sequence is the same as a camelid VHH exon (a "camelised VH exon"), at least one D region each comprising one D exon and at least one J region comprising one J exon, wherein the VH region, the D region and the J region are capable of recombining to form VDJ coding sequence, and

(b) a constant region heavy chain region comprising at least one Cγ constant heavy chain gene, and which when expressed does not express a functional CH1 domain nor a functional CH4 domain,

(c) a recombination sequence (rss) capable of recombining a J region of step (a) directly with a Cγ constant heavy chain gene of step (b),

and which locus when expressed is capable of forming a complete single heavy chain IgG molecule (scIgG).

5. A method according to claim 1 wherein the locus comprises one or more FRT sites.

6. A method according to claim 1 wherein the locus comprises two or more LoxP sites.

7. A method according to claim 1 wherein the VHH heavy chain locus comprises at least one D region of human origin and at least one J region of human origin.

8. A method according to claim 3 wherein the camelised VH heavy chain locus comprises at least one D region of human origin and at least one J region of human origin.

9. A method according to claim 1 wherein the constant heavy chain region comprises at least one constant heavy chain gene which is of camelid origin.

10. A method according to claim 1 wherein the constant heavy chain region comprises at least one constant region heavy chain gene which is of non-camelid origin.

11. A method according to claim 10 wherein at least one constant region heavy chain gene is of human origin.

12. A method according to claim 11 wherein at least one constant region heavy chain gene is of rabbit origin.

13. A method according to claim 11 wherein at least one constant region heavy chain gene is of mouse origin.

14. A method according to claim 1 wherein the heavy chain locus further comprises one or more cassette sites enabling the cassetting of the locus.

15. A method according to claim 14 wherein one or more cassette site is located in the heavy chain locus is in the 5' leader sequence of the locus.

16. A method according to claim 15 wherein one or more cassette site is located in the heavy chain locus is in the 3' untranslated region of the locus.

17. A VHH single heavy chain antibody obtainable according to the method of claim 1 wherein that part of the antibody encoded by a VHH exon is encoded by an exon of camelid origin and the remainder of the antibody molecule are encoded by one or more regions of human origin.

18. A VHH single heavy chain antibody obtainable according to the method of claim 1 wherein that part of the antibody encoded by a VHH exon is encoded by an exon of camelid origin and the constant heavy chain region is encoded by one or more regions of rabbit origin.

19. A VHH single heavy chain antibody obtainable according to the method of claim 1 wherein that part of the antibody encoded by a VHH exon is encoded by an exon of camelid origin and the constant heavy chain region is encoded by one or more regions of mouse origin.

20. A camelised VH single heavy chain antibody obtainable according to the method of claim 3.

21. A camelised VH single heavy chain antibody according to claim 20 wherein the whole of the antibody is encoded by one or more regions of human origin.

22. A camelised VH single heavy chain antibody according to claim 20 wherein that part of the antibody encoding the constant heavy chain region is encoded by one or more regions of rabbit origin.

23. A camelised VH single heavy chain antibody according to claim 20 wherein that part of the antibody encoding the constant heavy chain region is encoded by one or more regions of mouse origin.

24. A camelised VH single heavy chain antibody according to claim 20 which is a monoclonal antibody.

25. A vector comprising a VHH heavy chain locus described according to claim 1.

26. A vector comprising a camelised VH heavy chain locus described according to claim 3.

27. A host cell transformed with a vector according to claim 25.

28. A transgenic mammal expressing a heterologous VHH heavy chain locus described according to claim 2.

29. A transgenic mammal expressing a camelised VH heavy chain locus described according to claim 4.

30. A transgenic mammal according to claim 28 which is a mouse.

31. A method for the production of single chain antibodies by immunising a transgenic mammal according to claim 28 with an antigen.

32. The use of a single heavy chain antibody according to claim 17 in the preparation of a medicament for the prophylaxis and/or treatment of disease.